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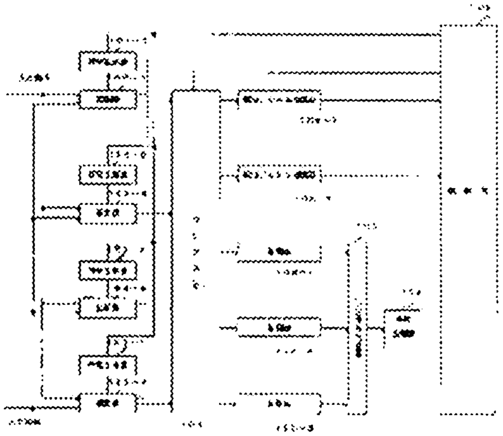
(54) CDMA SIGNAL RECEIVER

(57)Abstract:



PROBLEM TO BE SOLVED: To surely receive a channel with high importance by realizing a small number of correlation devices, code generators, software hand-off, multi-code communication and antenna diversity and sequencing a plurality of CDMA channels with different importance and frequency of occurrence.
SOLUTION: The receiver is provided with a plurality of correlation devices 103-1 to 103-4, a plurality of spread code generators 101-1 to 101-4, and a control section 102 and a code assignment table is stored in an internal memory of the control section. The table has a number of each correlation device, a code assigned to each correlation device, timing information of the code, and priority. In the case that a reception signal to be added for software hand-off, multi-code communication, and antenna diversity takes place, the assigned code number and the number of correlation devices are compared and when number of the assigned codes is more than number of correlation devices, the priority in the code assignment table and the priority of the additional reception signal are compared to discriminate whether or not a generated code to the spread code generator is made and the correlation device decides the reception signal subject to inverse spread processing.

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CLAIMS

[Claim(s)]

[Claim 1] In CDMA signal receiving sets, such as a cellular phone system which receives the CDMA signal by which multiplex was carried out by distinguishing the class of diffusion sign Have two or more correlator, two or more diffusion sign generation machines, and reception-control sections, and it sets in said reception-control section. The CDMA signal receiving set characterized by judging sign exchange based on priority when priority is given to the sign and timing which are assigned to said diffusion sign generation machine and the sign assignment more than said number of correlators occurs.

[Claim 2] A sign with the priority of the highest priority, the sign assigned as timing to the message channel with the highest receiving level, and timing are assigned. As a sign with the 2nd priority, and timing, a common information channel, And the sign and timing which were assigned to the multi-code channel of the same timing as said message channel are assigned. As the sign which assigns the sign and timing of a message channel of the software hand off point as 3rd priority, and has the lowest priority, and timing The CDMA signal receiving set given in claim 1 term characterized by assigning the sign and timing of an antenna diversity reception channel and a multi-pass receiving channel.

[Claim 3] The CDMA signal receiving set according to claim 1 or 2 characterized by changing the priority of sign assignment according to change of receiving level.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to CDMA signal receiving sets, such as a cellular phone system which used the CDMA method, especially its mobile station receiver.
[0002]
[Description of the Prior Art] "-- always -- anywhere -- whom or what kind of media -- " -- ** -- the personal communications to say are fields from which development is now expected most with multimedia. Although personal communications are the integrated concepts of a cable and wireless, the expectation especially for radio is very great. supply everything for the need with which the cellular phone is quickly expanded mainly by advanced nations in recent years, and increases rapidly in the conventional analog form in radio -- it is becoming the situation which is not. For this reason, the digital method excellent in subscriber capacity, communication link cost, unknown episode nature, and communicative versatility is becoming in use.

[0003] Although there are a TDMA (time division multiple access) method and a CDMA (code division multiple access) method as digital method, since the CDMA method is excellent in respect of [method / TDMA] subscriber capacity, it is a technique which attracts attention most now. A spread-spectrum technique is used by the CDMA method. A spread spectrum is a method which wide band width of face is made to diffuse the occupied bandwidth of a signal farther than the occupied bandwidth which information has, and transmits it using the sign sequence called a diffusion sign.

[0004] Although there are a direct diffusion (DS) method and a frequency-hopping (FH) method in a spread-spectrum technique, in a cellular phone system, a direct diffusion method is used chiefly. By the CDMA method using DS. a transmitting side performs a spread spectrum using the diffusion sign from which each mobile station differs, and multiplexes and transmits the signal of each sign channel to the same frequency band. On the other hand, in a receiving side, by performing the back diffusion of electrons with the same diffusion sign as a desired receiving channel, only the spectrum of a request signal gets over in a narrow-band, and other interference waves serve as a noise of a broadband conversely.

[0005] The CDMA method which uses such a spread-spectrum technique has the description which was [be / secrecy nature strong against a mutual intervention with the possibility of a strong software hand off and an alien system / high] excellent to multi-pass phasing by having the possibility of asynchronous access with a large subscriber capacity, and a RAKE receiver.

[0006] In the CDMA digital cellular communication system of a national form used conventionally, a certain short period diffusion sign PN 1, this PN1, and chip rate of the signal which gets down and is transmitted in a link are equal, and it is diffused by the signal by which the multiplication of the long period diffusion sign PN 2 with a long enough period was carried out rather than this PN1. By distinction of PN1, multiplex is possible for each user's message channel, and PN2 serves as a sign common to each user. Moreover, between base stations (cel), distinction between base stations is realized by changing the phase of this PN2. Thus, in order to change the phase of this PN2 between each base station, the GPS (Global PoSitioning SyStem) receiver was carried in each base station, and the synchronization is taken between base stations.

[0007] The block diagram of the example of a configuration of the baseband signaling processing section in the receiving set which receives such a CDMA signal is shown in drawing 6 . This block consists of the signal retrieval section 601, a control section 602, back-diffusion-of-electrons section 603-1-3, the symbol composition section 604, and the signal-processing section 605. Here, the signal retrieval section 601 and back-diffusion-of-electrons section 603-1-3 are correlators which perform correlation processing with an input signal, and the back diffusion of electrons. This receiver configuration is indicated by pp.169-170 of "Nikkei electronics" No.579 (April 26, 1993) at the detail.

[0008] Hereafter, actuation of this baseband signaling processing section is explained. The CDMA baseband signaling which carried out frequency conversion of the input signal to the base band is inputted into this baseband signaling processing section. This baseband signaling is a signal diffused as mentioned above with the composite signal of the short period diffusion sign PN 1 and the long period diffusion sign PN 2. The signal diffused with this composite signal is inputted into the signal retrieval section 601, and the receiving timing of each pass, such as a direct wave and a reflected wave, is searched. In this system, the signal (pilot channel) diffused only with the PN2 above-mentioned sign is transmitted to signal level and receiving timing detection, and the back diffusion of electrons of this signal is carried out here. Therefore, it is necessary to carry out the back diffusion of electrons of this PN2 sign here, and, generally the back-diffusion-of-electrons technique according [the period of this PN2] to slide correlation is used very much from a *******.

[0009] The internal structure of the signal retrieval section 601 is shown in drawing 7 . This signal retrieval section 601 is constituted by PN2 sign generating section 701, the DLL section (Delay Locked Loop) 702, and the amplitude detection section 703 that acquires correlation amplitude information from this DLL section 702 output. It consists of the early phase and the late phase as actuation of the DLL section 702 is stated to the detail pp.290-pp.311 of "spectrum diffusion communication system" (Mitsuo Yokoyama work, technology publishing company). However, in addition to an early phase and a late phase, in explanation of this invention, a configuration also including a punctual phase is called DLL for convenience.

[0010] The internal structure of PN2 sign generating section 701 is shown in drawing 8 . Among drawing 8 , a rectangular head expresses a shift register (delay circuit), and operates with a chip rate clock. For every cel, since the class of PN2 sign is common, it has the composition that only the PN code of immobilization can be generated. Here, it is constituted by the shift register section 801 for sign generating, and the EX-OR section 802 for feedback taps. However, if the shift register initialization pulse for sign generating is inputted from said control section 602, each shift register section 801 for sign generating will be initialized by the initial value set up beforehand. Such actuation enables it to generate PN2 in the sign phase of arbitration by PN2 sign generating section 801 to the control section 602. Thus, PN2 sign obtained by PN2 sign generating section 701 is inputted into the DLL section 702.

[0011] An input signal and correlation are taken in the DLL section 702, using the diffusion sign obtained from PN2 sign generating section 701 as a reference sign. The correlation amplitude is obtained by the amplitude detection section 703 using this correlation output. thus, the receiving signal amplitude information in each obtained pass timing is sent to a control section 602 -- having -- this result -- using -- pass with the largest received power -- the number of the back-diffusion-of-electrons sections -- choosing -- each -- PN code topology is sent so that it may synchronize with back-diffusion-of-electrons section 603-1-3 at those PN2 receiving timing.

[0012] each -- the internal structure of back-diffusion-of-electrons section 603-1-3 is shown in drawing 9 R> 9. Unlike the above-mentioned signal retrieval section 601, this block possesses the EX-OR section 903 which takes the exclusive OR of the output of PN1 sign generating section 902 assigned to each user, PN2 sign generating section 901, and PN2 sign generating section 901, and the output of PN1 sign generating section 902.

[0013] The internal structure of PN1 generating section 902 is shown in drawing 10 . PN1 sign is used for distinction of the user who uses a message channel in each cel, and if the cel in which a mobile exists changes, this PN1 sign may change. Therefore, it can be necessary to set the class of PN1 sign to generate as arbitration.

[0014] this PN1 generating section 902 -- this example -- PN2 sign generating section 901 -- differing -- the shift register section 1001 for the feedback tap change-over signal input for sign generating, the shift register section 1002 for this feedback tap change-over signal latch for sign generating, and the switch section for this feedback tap setup 1004 is added further. In addition, the shift register section 1003 for sign generating and the EX-OR section 1005 for feedback taps are the same configurations as the shift register section 801 for sign generating in PN2 generating section 701, and the EX-OR section 802 for feedback taps.

[0015] Moreover, the feedback tap setting signal for sign generating and a feedback tap change-over pulse are inputted into this PN1 generating section 902 from the control section 602 other than the shift register initialization pulse for sign generating.

[0016] Hereafter, the actuation is explained about the example by which the shift register section 1003 for sign generating was constituted from seven steps. First, a feedback tap setting signal is inputted from a control section 602. In this example, the example as which this feedback tap setting signal is inputted serially is shown. for example, "100000" is inputted as an input signal to use only the feedback tap (shift register output for sign generating of the 2nd S twist) of most right-hand side. However, "1" expresses "High" with logic and "0" expresses "Low" here.

[0017] What is necessary is similarly, just to input "100100" serially, in using the 4th feedback tap from most right-hand side and the right. There are only the six numbers of feedback taps which can be set up here for the shift register output for sign generating of most right-hand side surely returning. Thus, when six feedback taps are inputted, the clock of this shift register section 1001 for a feedback tap setting signal input is made into a stop and a latch condition.

[0018] Next, the feedback tap change-over pulse for sign generating is inputted into the shift register section 1002 for the feedback tap change-over signal latch for sign generating from a control section 602. Each feedback tap change-over information latched to the shift register section 1001 for this feedback tap setting signal input when this signal was inputted is latched to the shift register section 1002 for the feedback tap change-over signal latch for sign generating.

[0019] Thus, the switch section 1004 is controlled by the latched signal, and this feedback tap for sign generating is set up,by it. Moreover, initial value is beforehand set to this shift register section 1003 for sign generating, and the signal latched to the shift register whenever the shift register initialization pulse for sign generating was inputted is initialized by initial value.

[0020] Thus, in PN1 generating section 902, PN1 sign of hope is generated by the control section 602 in inputting the feedback tap setting signal for sign generating, and a feedback tap change-over pulse, and it becomes possible to output with the sign phase of hope by using the initialization pulse of the shift register for sign generating.

[0021] moreover -- each -- in back-diffusion-of-electrons section 603-1-3, the above-mentioned shift register initialization pulse for sign generating different, respectively is received, the reference sign which synchronized with it is generated, and the back diffusion of electrons of each pass used for RAKE reception is realized. About actuation of the DLL section, it is the same as that of the DLL section in the above-mentioned signal retrieval section 601.

[0022] thus -- each -- the back-diffusion-of-electrons signal output obtained from back-diffusion-of-electrons section 603-1-3 is inputted into the symbol composition section 604, respectively, after timing adjustment and weighting are made, it is compounded, and the ideal pass diversity maximum ratio composition is realized.

[0023] The rough flow of the receive section in the case of actually talking over the telephone is shown in drawing 11 . When the power source of a terminal is generally turned on (step S1101), initialization of a system is performed first (step S1102). Initial cel search actuation of this after is performed (step S1103). Here, an initial cel search is of operation [which determines with which base station it communicates first].

[0024] By this cellular phone system, since the class of PN2 sign which each base station uses as mentioned above has become common and it is distinguished only with the sign phase, this actuation is realizable only by identifying the large receiving timing (sign phase) of the correlation amplitude most using one kind of PN code. Thus, after the base station (cel) which talks over the telephone is determined, RAKE reception of a message channel is performed as mentioned above (step S1104), and a message can be realized.

[0025] However, since it is necessary to give exact offset to this PN2 between base stations, it is necessary to synchronize in time between base stations, therefore to carry a GPS (Global Positioning System) receiver in a base station in such a system. therefore, enlargement and since it forms high cost and the system for the synchronization between base stations etc. is further needed, system extensiveness, such as a base station addition, is [a base station system] complicated -- etc. -- there is a problem.

[0026] In view of this problem, CDMA cellular system which changes the class of sign of the above PN 2 for every base station is examined now. Moreover, in order to make mobile communication of high quality possible, the same information is transmitted to one terminal from two base stations. a terminal -- back-diffusion-of-electrons section 603- the software hand off which carries out the back diffusion of electrons of the base station signal which is different by 1 and 2 -- In order to realize the antenna diversity which carries out the back diffusion of electrons of the signal of a different receiving antenna, and high-speed mobile communication, the short period diffusion sign from which plurality differs is assigned to one terminal, and the multi-code communication link which performs the back diffusion of electrons of two or more kinds of short period diffusion signs to coincidence by the terminal side is considered.

[0027]

[Problem(s) to be Solved by the Invention] In such a system, in order to perform the back diffusion of electrons according to individual to a different diffusion sign using two or more correlators, and sign timing, respectively and to realize all functions, much correlators and a coder are extremely needed. Moreover, the correlator which the common information information transmitted from a base station may be transmitted, other code channels, for example, signal retrieval channel, and receives common information information periodically in that case, a coder, and a demodulator are further needed. However, a software hand off, an antenna diversity, and a multi-code communication link are not necessarily always performed, and dynamic employment is performed if needed.

[0028] This invention is made in view of the above-mentioned trouble, and realizes a software hand off, a multi-code communication link, and an antenna diversity, using little correlator and a coder effectively. Moreover, other purposes of this invention are to offer the CDMA signal receiving set which carries out ranking attachment of two or more CDMA channels from which significance and occurrence frequency differ, and receives a channel with a high significance certainly.

[0029]

[Means for Solving the Problem] By distinguishing the class of diffusion sign, invention concerning claim 1 can be set to the cellular phone system which receives the CDMA signal by which multiplex was carried out, has two or more correlators, two or more diffusion sign generation machines, and the reception-control section, and holds a sign quota table in the memory inside the reception-control section. As correlator, DLL (slide correlation) and a matched filter (MF) can be considered. A diffusion sign generation machine can consider the configuration which the short periodic system train and the long periodic system train sign generation machine combined. Moreover, within a table, the timing information of the number of each correlator, the sign assigned to each correlator, and a sign and priority are held. When the input signal which should be added for a software hand off, a multi-code communication link, and an antenna diversity arises By comparing the number of allocation codes with the number of correlators. and comparing the priority in said sign quota table with the priority of said additional input signal. when there are more allocation codes than the number of correlators The input signal which judges whether the generation sign to the signal change by the switch of all or some of correlators of said correlators and said diffusion sign generation machine is replaced, and carries out the back diffusion of electrons with said correlator is determined.

[0030] Invention concerning claim 2 performs ranking attachment of priority in order of a channel with a high significance./The sign and timing which were assigned to the message channel with the highest receiving level are assigned to a sign quota table with the priority of the highest priority. On a sign quota table with the 2nd priority, a common information channel, And the sign and timing which were assigned to the multi-code channel of the same timing as said message channel are assigned. The sign and timing of a message channel of the software hand off point are assigned to a sign quota table with the 3rd priority. It is characterized by assigning the timing of an antenna diversity reception channel and a multi-pass receiving channel to a sign quota table with the lowest priority.

[0031] Invention concerning claim 3 is characterized by rewriting the contents of the sign quota table according to change of the receiving level by phasing.

[0032] By distinguishing the class of diffusion sign, the CDMA signal receiving set concerning above-mentioned this invention receives the CDMA signal by which multiplex was carried out, and inputs the CDMA baseband signaling acquired by carrying out frequency conversion of said signal to a base band into two or more correlators to which a number was assigned beforehand. When correlator is a matched filter, there are an advantage by which a synchronous circuit is simplified, and the advantage to which two or more multi-pass signals received with the same antenna can restore with one correlator.

[0033] There are digital one MF and an analog MF as a method of realizing MF, and especially when a matched filter consists of analog technology, a need actuation clock frequency can be stopped and it can count upon low-power-ization.

[0034] Moreover, the reception-control section holds a sign quota table in internal memory. Moreover, the reception-control section sets the diffusion sign from which a class or timing differs as a reference sign, respectively as these two or more diffusion sign generation machines. In two or more correlators, correlation with an input signal and the reference sign obtained, respectively is taken, respectively. In case the input signal which should be added for a software hand off, a multi-code communication link, an antenna diversity, RAKE reception, etc. arises and a sign is assigned to a diffusion sign generation machine By comparing the number of allocation codes with the number of correlators, determining the priority of an additional input signal, when there are more allocation codes than the number of correlators, and comparing the priority of said sign quota table with the priority of said additional input signal When the priority of an additional input signal is high, the signal changeover switch of all or some of correlators of said correlators and the generation sign to said diffusion sign generation machine are replaced, and when that is not right, it does not change. Thereby, the high signal of priority is effectively receivable. When there are few allocation codes than the number of correlators, the number of the sign itself or the class of sign and sign timing, and setting correlator is held in memory on the sign quota table which corresponds while setting a sign to a diffusion sign generation machine as it is. Counting the total of the correlator set up as the approach of a comparison of the number of allocation codes, and holding in another location in memory is also considered, the comparison of a value with the total number of correlators beforehand determined as this builds a flag, and the approach exchange of a generation sign judges with a flag whether it is the need is also considered.

[0035] Moreover, how to perform ranking attachment of priority in order of a channel with a high significance as a method of setting up the priority of the reception-control section can be considered. For example, the sign and timing which were assigned to the sign quota table with the priority of the highest priority at the message channel with the highest receiving level are held. On a sign quota table with the 2nd priority, a common information channel, And the sign and timing which were assigned to the multi-code channel of the same timing as said message channel are held. The sign and timing of a message channel of the software hand off point are held on a sign quota table with the 3rd priority. It is possible to hold the timing of an antenna diversity reception channel and a multi-pass receiving channel on a sign quota table with the lowest priority.

[0036] The message channel with high receiving level is the most important for reception of the stable message channel. Moreover, a common information channel and multi-code reception surely need to receive, when the need for a not always required thing arises. Moreover, reception of the message channel of the software hand off point is more important than other multi-pass channels and antenna diversities because of a hand off without hits, and although significance is comparatively low, since it is indispensable to the stable quality signal reception, when not receiving the various aforementioned channels, it is necessary to receive a multi-pass channel and an antenna diversity reception channel. Moreover, only rewriting of a table is performed, when the signal level of the channel under reception changes with phasing by top priority and a signal with the highest receiving level changes to other channels in a table.

[0037]

[Embodiment of the Invention] Drawing 1 is the block diagram of the example of a baseband signaling processing section configuration concerning the gestalt of operation of the 1st of this invention. This block consists of diffusion sign generation machine 101-1-4, a control section 102, correlator 103-1-4, the selector section 104, information channel recovery section 105-1-2, recovery section 106-1-3, the symbol composition section 107, and the signal-processing section 108.

[0038] The input signal in this block diagram is the CDMA baseband signaling acquired by carrying out frequency conversion of the input signal to a base band. This baseband signaling is diffused by the diffusion signal by which the multiplication of the long period diffusion sign PN 2 with a long enough period was carried out to the short period diffusion sign PN 1 which exists like the conventional example rather than this PN1. However, PN2 sign is a sign of the class which changed with base stations. Moreover, two input signals from two antennas are outputted, and, as for this baseband signaling, an antenna diversity becomes possible.

[0039] The internal structure of the diffusion sign generation machine 101 is shown in drawing 2 . This block is constituted by the EX-OR section 203 which takes the exclusive OR of PN2 sign generating section 201, PN1 sign generating section 202, and PN2 sign generating section 201 output and PN1 sign generating section 202 output.

[0040] This PN1 sign generating section 202 is the same configuration as PN1 sign generating section 902 stated in the conventional example, and performs same actuation. However, as the conventional example described, when the signal (pilot channel) diffused only with the PN2 above-mentioned sign is transmitted to signal level and receiving timing detection, this PN1 sign generating section 202 is unnecessary. In addition, in drawing 2 , the DLL section 204 and the amplitude detection section 205 show the component of correlator 103.

[0041] The internal structure of this PN2 sign generating section 201 is shown in drawing 3 . PN2 sign is distinguishing the base station with the sign of a class different, respectively, and it can be necessary to set the class of PN2 sign to generate as arbitration. Therefore, it is constituted from the shift register section 301 for a feedback tap change-over signal input for sign generating, the shift register section 302 for a feedback tap change-over signal latch for this sign generating, this shift register section 303 for sign generating, this switch section 304 for a feedback tap setup, and the EX-OR section 305 for feedback taps by this example.

[0042] If the shift register initialization pulse for sign generating is inputted from a control section 102, each shift register for sign generating will be initialized by the initial value set up beforehand. Moreover, the feedback tap setting signal for sign generating and a feedback tap change-over pulse are inputted from a control section 102. About actuation, it is the same as that of PN1 sign generating section 902 of the conventional example. By the above, the diffusion sign generation machine 101 becomes possible [switching the class of PN2 sign with the control signal from a control section 102]. The diffusion sign generated with the diffusion sign generation vessel 101 is inputted into correlator 103.

[0043] Correlator 103 consists of a DLL or a matched filter, chooses one of two input signals, and outputs the signal and the correlation output signal of an input signal which were generated with the diffusion sign generation vessel 101. When correlator 103 is a matched filter, there are an advantage by which a synchronous circuit is simplified, and the advantage to which two or more multi-pass signals received with the same antenna can restore with one correlator. Furthermore, when a matched filter consists of analog technology, a need actuation clock frequency can be stopped and it can count upon low-power-ization.

[0044] In the cellular telephone system using a CDMA method, using PN1 different sign, multiplex [of

the information channel signaling with which a control signal common to a total displacement office is transmitted, and the message channel for every user] may be carried out to coincidence, they may be transmitted to it, and the output of correlator 103 is chosen in the selector section 104, respectively.
[0045] The signal which took the diffusion sign of an information channel and correlation with correlator 103 is led to the information channel recovery section 105 in the selector section 104, the digital signal of an information channel restores to it, and the information on the information channel recovery section 105 is inputted into a control section 102. The number of these information channel recovery sections may be one, or they may have more than one. Moreover, the diffusion sign of a message channel and the signal which took correlation with correlator 103 are chosen in the selector section 104, and is led to one of two or more recovery sections 106, and the digital signal of a message channel restores to it in the recovery section 106.
[0046] RAKE composition of the output signal of the recovery section 106 is carried out in the symbol composition section 107, and signal processing according to the contents of information, for example, voice, an image, data, etc. is made in the signal-processing section 108. it is the same as the number of correlators 103 in the information channel recovery section 105 -- PN2 sign corresponding to a base station which ******, for example, is different from PN1 sign of an information channel in all the sign generation vessels 101 at the time of an initial cel search is assigned, a diffusion sign is generated, correlation of the information channel signaling of two or more base stations with correlator 103 is taken, and it is possible to restore to two or more information channels to coincidence with a demodulator 106 at high speed.
[0047] When initial cel search actuation is completed, PN1 sign and PN2 sign which are generated with a diffusion sign generation vessel are changed, and RAKE reception of the message channel of a specific base station requires. It is enough as an information channel for it not to be necessary to always get over and just to receive information intermittently in many cases.
[0048] Although the same multi-pass signal of PN2 sign and an antenna diversity signal are used when [all] the sign set as each diffusion sign generation machine 101 has the strong signal of a specific base station, the signal from two base stations is the purpose which receives the signal from two different base stations, when strong to the same extent, PN2 different sign may be set as the diffusion sign generation machine 101, it may receive, and the so-called software hand off can realize.
[0049] When a certain mobile station moves to the cel of other base stations from the cel of one base station, and the software hand off is carried out, it has the advantage in which there is no blocking of the signal by changing a base station. As a configuration of the selector section 104, the output of some correlators 103 may be a configuration led to the information channel recovery section 105 or the recovery section 106 fixed.
[0050]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram of the example of a baseband signaling processing section configuration concerning the gestalt of operation of the 1st of this invention.
[Drawing 2] It is the block diagram of the sign generation machine of baseband signaling processing circles concerning the gestalt of operation of the 1st of this invention.
[Drawing 3] It is the block diagram of PN2 sign generating section of signal retrieval circles concerning the gestalt of operation of the 1st of this invention.
[Drawing 4] It is the block diagram of the example of a baseband signaling processing section configuration concerning the gestalt of operation of the 2nd of this invention.
[Drawing 5] They are the 1st of this invention, and a flow chart Fig. in the case of the sign assignment concerning the gestalt of the 2nd operation.
[Drawing 6] It is the block diagram of the conventional example of a baseband signaling processing section configuration.
[Drawing 7] It is the block diagram of the conventional signal retrieval section of baseband signaling processing circles.
[Drawing 8] It is the block diagram of the conventional PN2 sign generating section of signal retrieval circles.
[Drawing 9] It is the block diagram of the conventional back-diffusion-of-electrons section of baseband signaling processing circles.
[Drawing 10] It is the block diagram of the conventional PN2 sign generating section of back-diffusion-of-electrons circles.
[Drawing 11] It is the flow chart Fig. of the receive section at the time of talking over the telephone.
[Description of Notations]
101-1-4 Diffusion sign generation machine
102 Control Section
103-1-4 Correlator
104 Selector Section
105-1-2 Information channel recovery section
106-1-3 Recovery section
107 Symbol Composition Section
108 Signal-Processing Section
202, 701, 901 PN1 generating section
201 902 PN2 generating section
204, 702, 904 The DLL section
205 703 Amplitude detection section
203 903 The EX-OR section in PN1 sign output and PN2 sign output
301 1001 The shift register section for a feedback tap change-over signal input for sign generating
302 1002 The shift register section for a feedback tap change-over signal latch for sign generating

303, 801, 1003 The shift register section for sign generating
304 1004 The switch section for a feedback tap setup
305, 802, 1005 The EX-OR section for feedback taps
601 Signal Retrieval Section
602 Control Section
603-1-3 Back-diffusion-of-electrons section
604 Symbol Composition Section
605 Signal-Processing Section

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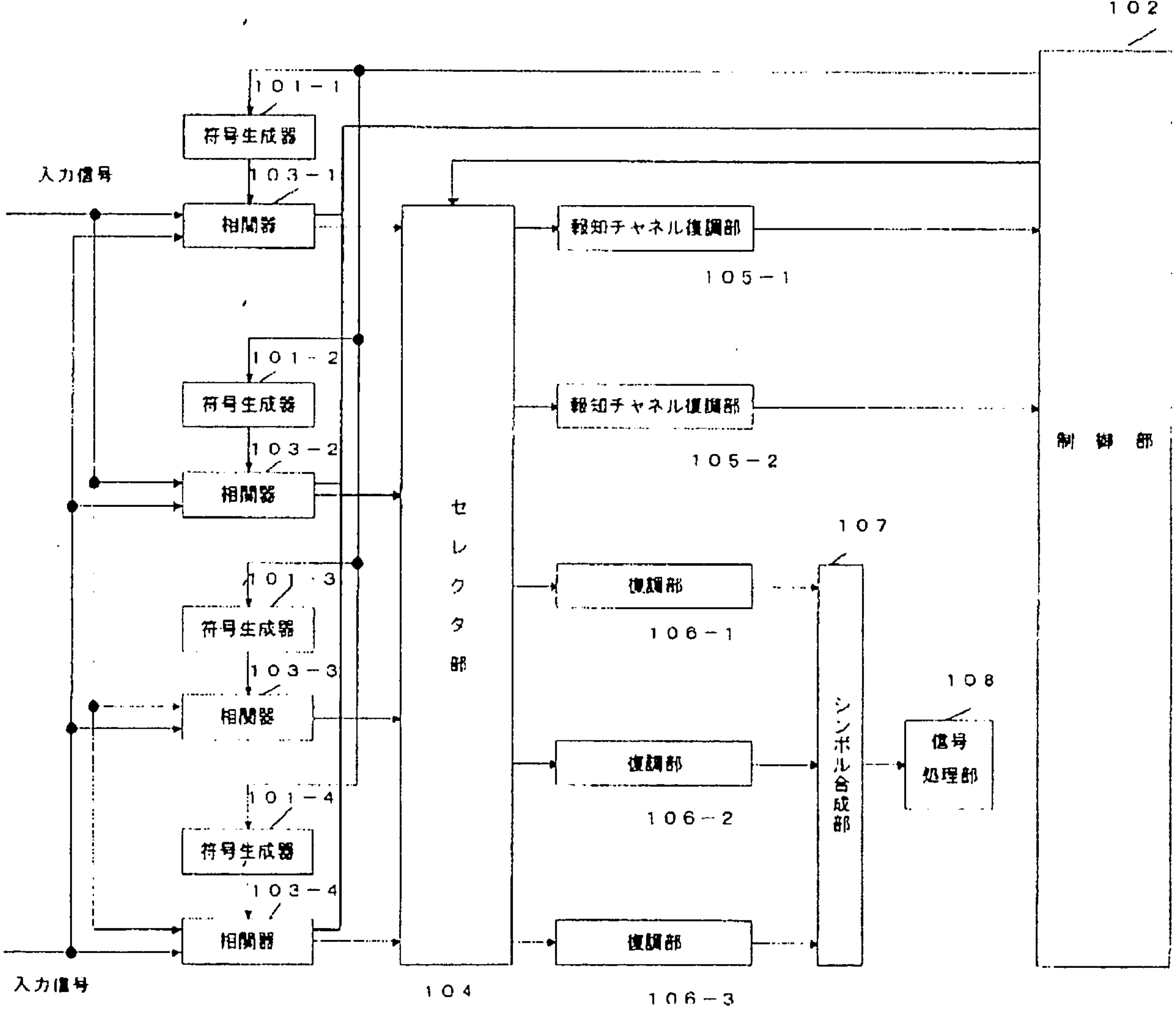
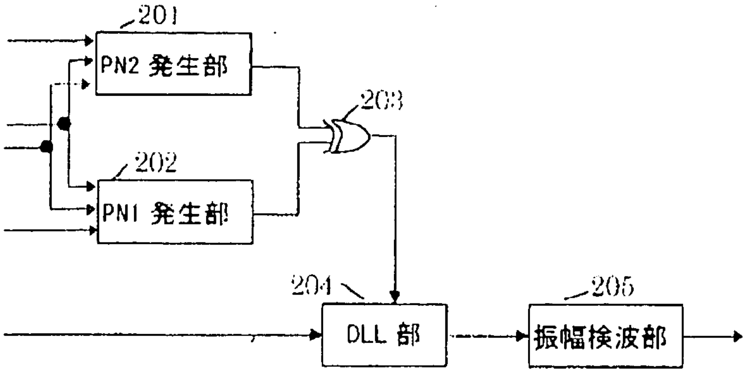
DRAWINGS

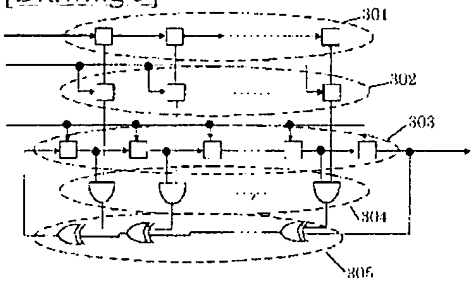
[Drawing 1]


102
101－1
符号生成器
入力信号
103－1
相関器
報知チャネル復調部
105－1
101－2
符号生成器
103－2
相関器
報知チャネル復調部
105－2
制御部
セレクタ部
107
101－3
符号生成器
復調部
106－1
103－3
相関器
108
シンボル合成部
信号処理部
復調部
106－2
101－4
符号生成器
103－4
相関器
復調部
入力信号
104
106－3

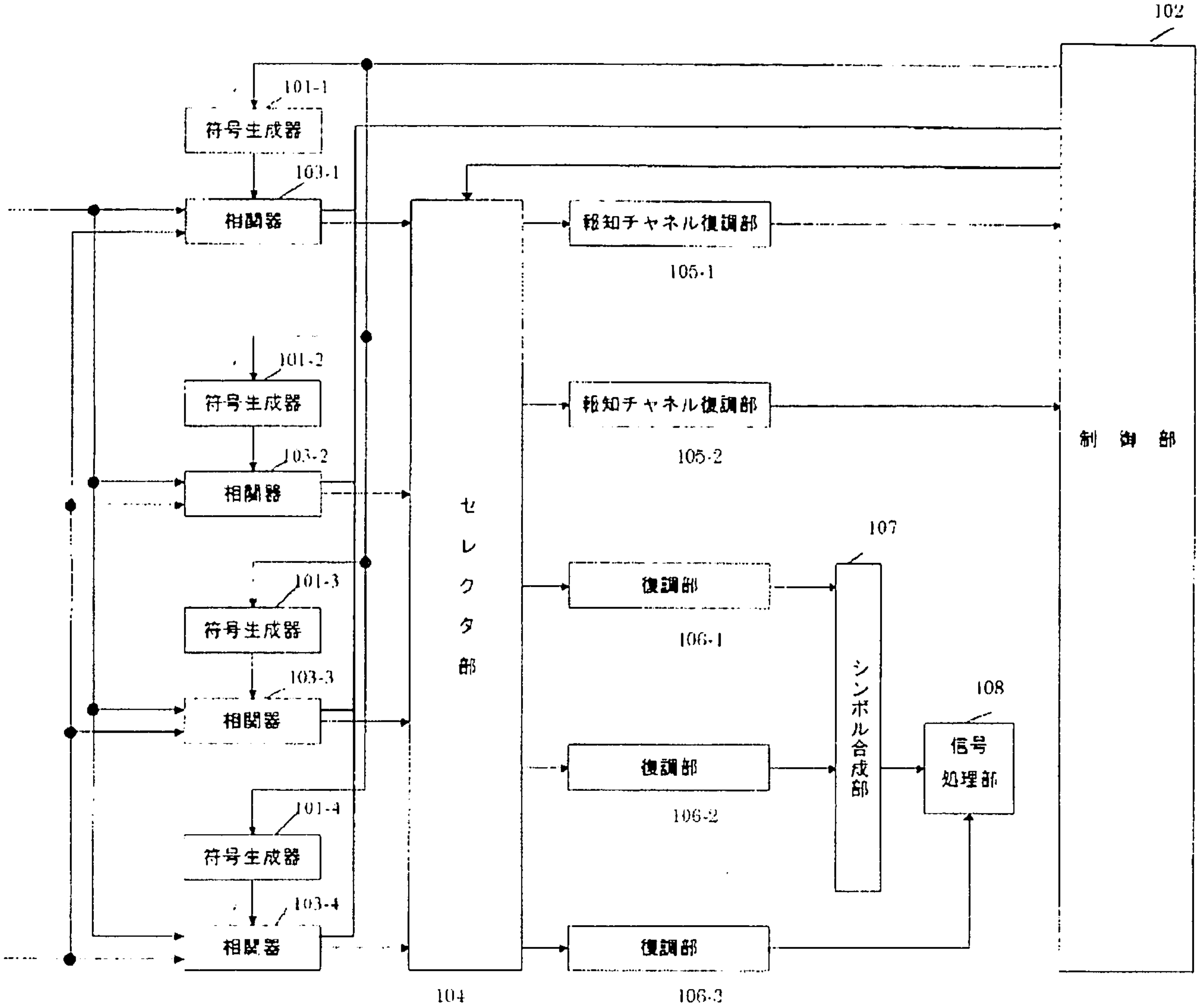
[Drawing 2]


201
PN2 発生部
203
202
PN1 発生部
204
DLL 部
205
振幅検波部

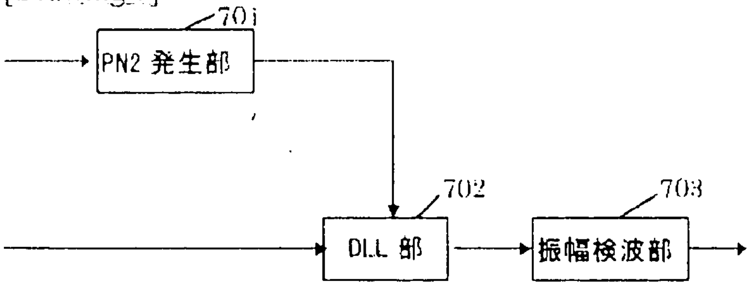
[Drawing 3]


301
302
303
304
305

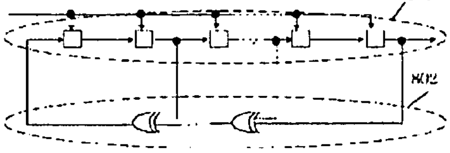
[Drawing 4]


102
101-1
符号生成器
103-1
相関器
報知チャネル復調部
105-1
101-2
符号生成器
103-2
相関器
報知チャネル復調部
105-2
制御部
セレクタ部
107
復調部
106-1
101-3
符号生成器
103-3
相関器
シンボル合成部
108
信号処理部
復調部
106-2
101-4
符号生成器
103-4
相関器
復調部
104
106-3

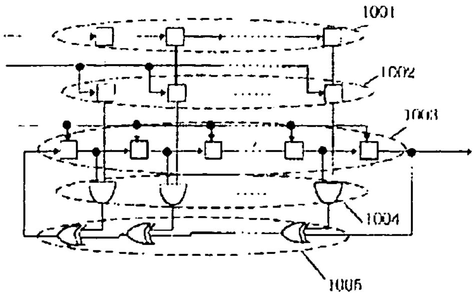
[Drawing 7]


701
PN2 発生部
702
DLL 部
703
振幅検波部

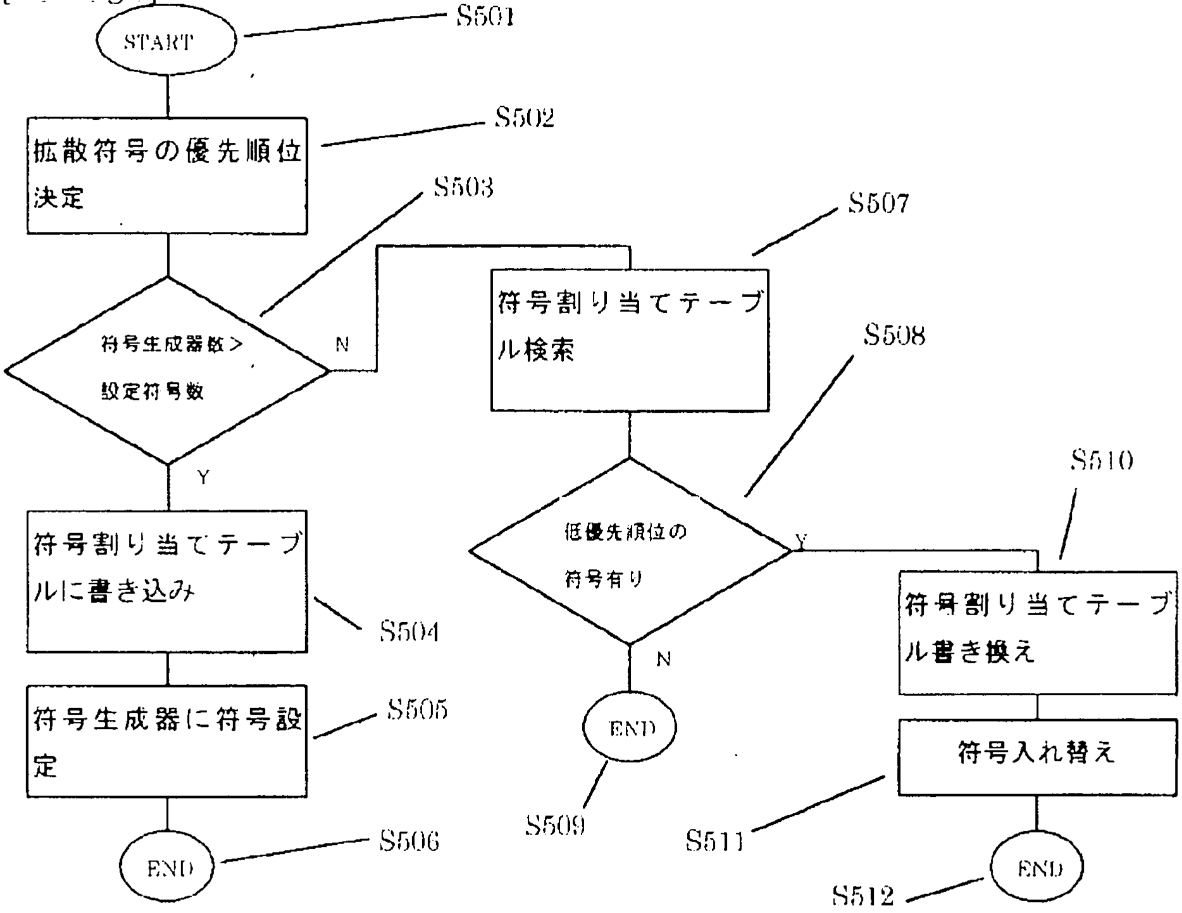
[Drawing 8]



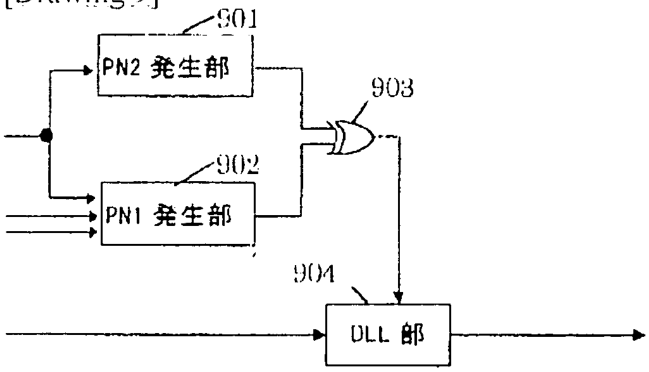
[Drawing 10]


1001
1002
1003
1004
1005

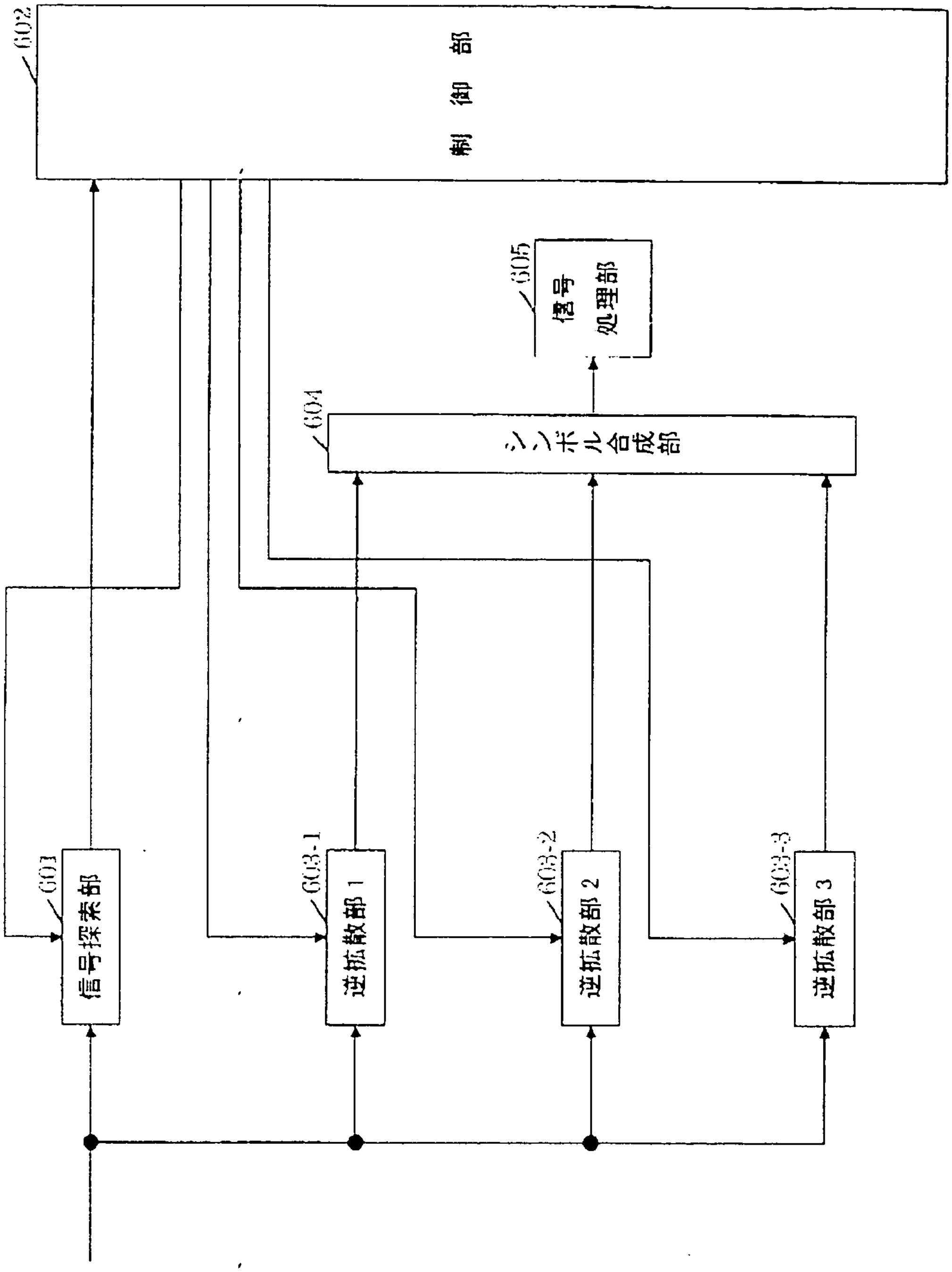
[Drawing 5]


S501
START
S502
拡散符号の優先順位決定
S503
符号生成器数＞設定符号数
N
Y
S504
符号割り当てテーブルに書き込み
S505
符号生成器に符号設定
S506
END
S507
符号割り当てテーブル検索
S508
低優先順位の符号有り
Y
N
S509
END
S510
符号割り当てテーブル書き換え
S511
符号入れ替え
S512
END

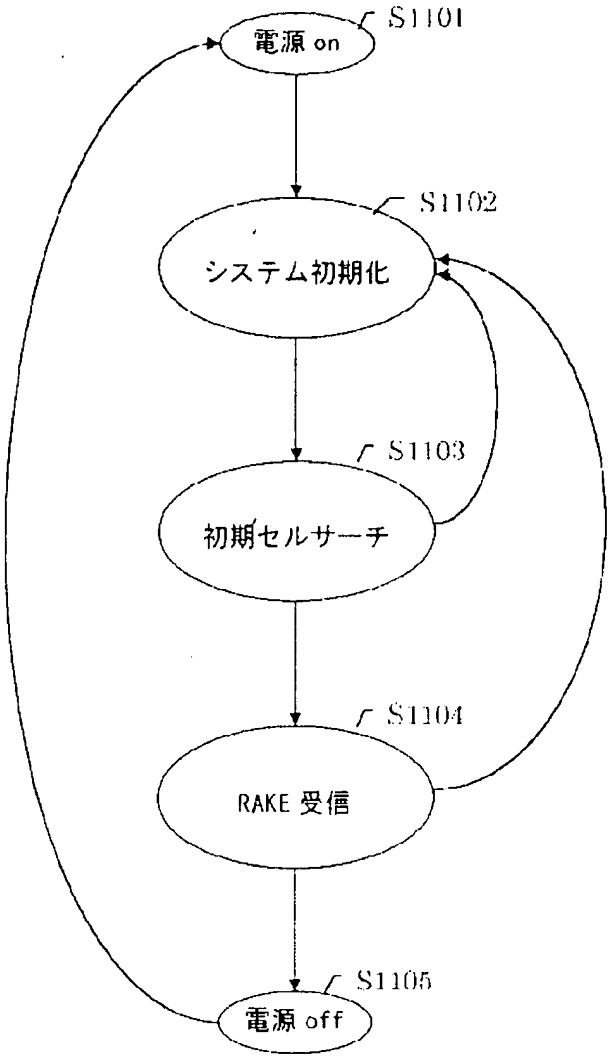
[Drawing 9]


901
PN2 発生部
902
PN1 発生部
903
904
DLL 部

[Drawing 6]


602
制御部
605
信号処理部
604
シンボル合成部
601
信号探索部
603-1
逆拡散部 1
603-2
逆拡散部 2
603-3
逆拡散部 3

[Drawing 11]


S1101
電源 on
S1102
システム初期化
S1103
初期セルサーチ
S1104
RAKE 受信
S1105
電源 off

[Translation done.]

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